

IN THE CLAIMS:

Please cancel claims 45-47 and 56-57.

Please amend the claims as follows:

1-30. (cancelled)

31. (currently amended) A process for manufacturing a packaging grade laminated mild steel strip, the process comprising the steps of:

(a) cleaning the strip;

(b) chemically pre-treating the cleaned strip to form directly on one or each of its surfaces a single layer of a non-metallic chemical coating comprising an oxyanion on the surface of the cleaned strip to resist corrosion of the underlying mild steel substrate and to promote adhesion to a subsequently applied layer; and wherein the non-metallic chemical coating comprises a two component organic polymer or chromium, silicon and an organic active species or one or more of yttrium, elements in the lanthanum series of the periodic table, silanes or azoles;

(c) applying directly to the chemically-treated strip a coating comprising a single layer of a thermoplastic resin to form a protective layer on at least one surface thereof.


32. (previously added) A process according to claim 31 wherein the metal strip is cold-rolled metal strip.

33. (previously added) A process according to claim 31 wherein the metal strip has a

gauge of between 0.08 and 0.50mm.

34. (previously added) A process according to claim 33 wherein the strip has a gauge of 0.18mm.

35. (previously added) A process according to claim 31 wherein the metal strip is cleaned electrolytically.

 36. (previously added) A process according to claim 31 wherein the chemical coating is applied to the metal strip by a method of immersion, spraying, roller coating, or a combination thereof.

37. (previously added) A process according to claim 36 wherein the chemical coating is applied by immersing the metal strip into at least one chemical treatment vessel.

38. (previously added) A process according to claim 37 wherein the residence time of the metal strip in the chemical-treatment vessel is less than 60 seconds.

39. (previously added) A process according to claim 37 wherein the residence time of the metal strip in the chemical-treatment vessel is less than 30 seconds.

40. (previously added) A process according to claim 37 wherein the residence time of the metal strip in the chemical-treatment vessel is less than 15 seconds.

41. (previously added) A process according to claim 37 wherein the residence time of the metal strip in the chemical-treatment vessel is less than 10 seconds.

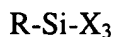
42. (previously added) A process according to claim 31, wherein the metal strip is chemically treated at a temperature of less than 100°C.

43. (previously added) A process according to claim 31, wherein the chemical coating provides an anti-corrosive, adhesion promoting chemical coating between the metal strip and thermoplastic resin.

44. (currently amended) A process according to claim 31, wherein the chemical coating comprises one or more oxyanions selected from the group consisting of phosphate, chromate, oxalate and arsenate.

45-47. (cancelled)

48. (previously added) A process according to claim 39 wherein the chemical coating comprises silanes of the general formula,



where R is an organofunctional group linked to silicon by a hydrolytically stable bond and X denotes a hydrolyzable group.

49. (previously added) A process according to claim 36 wherein the chemical coating comprises one or more phosphates selected from zinc orthophosphate, manganese phosphate and iron phosphate.

50. (previously added) A process according to claim 31, wherein the chemical coating comprises less than 5 atomic % chromium.

51. (previously added) A process according to claim 31, wherein the chemically-treated metal strip is rinsed and/or dried prior to the application of a coating of a thermoplastic resin.

52. (previously added) A process according to claim 31 wherein the thermoplastic resin is applied to one or both sides of the chemically-treated metal strip.

53. (previously added) A process according to claim 31 wherein the coating of thermoplastic resin is melted and rapidly quenched to attain the required degree of crystalline structure.

54. (previously added) A process according to claim 31, wherein the chemically-treated metal strip is extrusion coated with at least one thermoplastic resin.

55. (previously added) A process according to claim 31 wherein the film of thermoplastic resin is bonded to the chemically-treated metal strip under conditions of elevated temperature and pressure.

56-57. (cancelled)

58. (previously added) A process according to claim 31, wherein the thermoplastic resin comprises polypropylene (PP), polyethyleneterephthalate (PET) or a combination thereof.

59. (previously added) A process according to claim 31 wherein the thickness of the layer, or layers, of thermoplastic resin is/are between 3 and 50 μm .

60. (previously added) A laminated mild steel strip manufactured by the process according to claim 31.

61. (previously added) A food, beverage or aerosol can comprising laminated mild steel strip according to claim 31.

Please add the following new claim:

62. (new) A process according to claim 40 wherein the chemical coating comprises a silane of the general formula,



where R is a reactive functional group and X is a methoxy group.

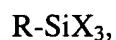
63. (new) A process for manufacturing laminated metal strip, the process comprising the steps of,

cleaning metal strip;

chemically pre-treating the cleaned metal strip to form on one or each of its surfaces a non-metallic chemical coating comprising silanes, which resists corrosion of the underlying metal substrate and promotes adhesion to a subsequently applied layer ; and,

applying to the chemically-treated metal strip a coating of thermoplastic resin to form a protective layer on at least on surface thereof.

64. (new) A process according to claim 63 wherein the chemical coating comprises silanes of the general formula,



where R is an organofunctional group linked to silicon by a hydrolytically stable bond and X denotes hydrolysable groups, e.g. alkoxy groups, which are converted to silanol groups on hydrolysis.

65. (new) A process according to claim 64 wherein the chemical coating comprises a silane of the general formula,



where R is a reactive functional group and X is the methoxy group.

66. (new) A process according to claim 63 wherein the metal strip is cold-rolled metal strip.

67. (new) A process according to any claim 63 wherein the metal strip has a gauge of between 0.08 and 0.50 mm.

68. (new) A process according to claim 67 wherein the metal strip has a gauge of 0.18mm.

69. (new) A process according to claim 63 wherein the metal strip comprises blackplate.

70. (new) A process according to claim 63 wherein the metal strip is cleaned electrolytically.

71. (new) A process according to claim 63 wherein the chemical coating is applied to the metal strip by a method of immersion, spraying, roller coating or a combination thereof.

72. (new) A process according to claim 71 wherein the chemical coating is applied by immersing the metal strip into at least one chemical treatment vessel.

73. (new) A process according to claim 72 wherein the residence time of the metal strip in the chemical-treatment vessel is less than 60 seconds.

74. (new) A process according to claim 73 wherein the residence time of the metal strip in the chemical-treatment vessel is less than 30 seconds.

75. (new) A process according to claim 74 wherein the residence time of the metal strip in the chemical-treatment vessel is less than 15 seconds.

76. (new) A process according to claim 75 wherein the residence time of the metal strip in the chemical-treatment vessel is less than 10 seconds, for example, 5 seconds.

77. (new) A process according claim 63 wherein the metal strip is chemically treated to form an anti-corrosive, adhesion promoting chemical coating between the metal strip and thermoplastic resin.

78. (new) A process according to claim 63 wherein the chemical coating comprises an oxyanion such as a phosphate, chromate, oxalate or arsenate.

79. (new) A process according to claim 63 wherein the chemical coating comprises less than 5 atomic % chromium.

80. (new) A process according to claim 63 wherein the chemically-treated metal strip is rinsed and/or dried prior to thermoplastic resin coating.

81. (new) A process according to claim 63 wherein one or more layers of thermoplastic resin are applied to one or both sides of the chemically-treated metal strip.

82. (new) A process according to claim 63 wherein the layer or layers of thermoplastic resin is/are melted and rapidly quenched to attain the required degree of crystalline structure.

83. (new) A process according to claim 63 wherein the chemically-treated metal strip is extrusion coated with at least one thermoplastic resin.

84. (new) A process according to claim 83 wherein the film of thermoplastic resin is bonded to the chemically-treated metal strip under conditions of elevated temperature and pressure.

85. (new) A process according to claim 63 wherein the chemically-treated metal strip is coated with thermoplastic resin together with a bonding layer.

86. (new) A process according to claim 85 wherein the bonding layer comprises a polyester or an acid or acid-anhydride polyolefin resin containing carboxyl or anhydride groups.

87. (new) A process according to claim 85 wherein the thickness of the bonding layer is between 1 and 10 μm .

88. (new) A process according to claim 63 wherein the thermoplastic resin comprises polypropylene (PP), polyethyleneterephthalate (PET) or a combination thereof.

89. (new) A process according to claim 63 wherein the thickness of the layer, or layers, of thermoplastic resin is/are between 3 and 50 μm .

90. (new) A laminated metal strip as manufactured by the process according to claim 63.